

Quantifying Energy Security Impacts

ECAI Web Forum Summary – August 1, 2007

The Energy Collaborative Analysis Initiative (ECAI) Planning Committee presented its third Web forum, "Quantifying Energy Security Impacts," on August 1, 2007.

During the Web forum, presenters discussed the benefits that various technologies provide in terms of energy security impacts for the United States and the nation's energy position relative to the rest of the world. Speakers included:

- **Jeff Pillon**, Michigan Public Service Commission and head of the National Association of State Energy Officials (NASEO)
- **David Greene**, Oak Ridge National Laboratory (ORNL)
- **Steve Siegel**, Energy and Security Group

Their presentations, which can be accessed at http://www.nrel.gov/analysis/collab_analysis/webforum_archive.html#0707forum, were followed by a discussion of the key analytical questions that arise related to energy security. These questions demonstrate an increasing need to quantify the impact of various technologies on U.S. energy security, including supply, demand, and infrastructure.

The following reflects information from the Q&A session, which followed the presentations above.

Question: There's a lot of information out there that's sensitive, but how do we become less restrictive so we can get it to the right people and identify vulnerabilities?

Answer: Much of the information is already out there, but the system needs to be more resilient. The data shows what our capacity is.

We are estimating our protective benefits and how well we are doing regarding defensive measures. Metrics are being developed, but we need to know how we can quantify progress on implementation of protective measures.

Our vulnerability seems to be on the rise – we need to have speed with our response and solid security measures. There also needs to be an endurance factor with response (in addition to speed) when we lay out plans for forced deployment for certain levels of threat. With deployment issues, plans and impact can be about 12-18 months.

There are two dimensions – recovery phase (New Orleans is a good example) and a phase for sustaining resources, which is equally important. In New Orleans, key utility personnel had to evacuate and then get back in, which was extremely difficult. We need to ensure people are trained. It's also key to have the right data and info available, so there's an ability to shut down things and respond quickly.

There is information available on the National Infrastructure Protection Plan (NIPP) – available at www.dhs.gov/nipp – and supporting Sector-Specific Plans (SSPs), which provide a coordinated approach to critical infrastructure and key resources (CI/KR) protection roles and responsibilities for federal, state, local, tribal, and private-sector security partners. This plan sets national priorities, goals, and requirements for effective distribution of funding and resources, which will help ensure that our government, economy, and public services continue in the event of a terrorist attack or other disaster.

Question: There have always been – and, unfortunately, probably always will be – “haves” and “have nots.” What do we need to do to ensure everyone is equally secure regarding access to energy?

Answer: To reduce the cost of the fuel, we need to reduce distance – and we need to reduce demand.

There are major security issues for sites, and some of it has to do with relationships to state utility planning. We have to do our best to come up with some standards for full-cost accounting in the decision-making process and ensure those decisions are related to the full cost of benefits. Decision factors such as climate change, health, etc. need to be made with overall mainstream issues in mind, and not just “ad hoc.”

Regarding our defense capabilities, there also is a peacetime cost. When we're looking at the grid, in general, we need to ensure security is part of the initiative.

Also, we need to ensure that the perspective of “economic vulnerability” is just as recognized as security-related vulnerabilities.

There is an equation to describe the power of the cartel. If OPEC cuts back a barrel, can the rest of the world make up that supply? The rest of the world outside of OPEC is going to plateau on its supply, and competitors will face an inability to meet production needs.

Both things can be right at the same time. There won't be any increase in supply from OPEC, but does it make sense to increase production to meet demand? Some supply will come from expanded production in Arctic, coal to liquids, biofuels, etc. OPEC will expand production – but not enough; we need to reduce demand. A measurable goal is needed – a good definition of “independence” doesn't exist. Transportation faces other challenges, but it is an integrated issue.

Oil prices are always a different story in the short and the long term. Are prices above or below where they should be at this point? It doesn't always incorporate the dynamic aspects of increasing demand and shrinking supply. Current prices are a demand-drive shock from continuing to constrain production in the short term to keep prices high. The demand was mostly from China.

Question: What is your view on peak oil? Is it real and will it happen?

Answer: If you define oil as just conventional oil, then there is no doubt that production will peak outside of OPEC relatively soon – maybe even 2010. It doesn't mean it's running out, it's mostly a matter of how fast you can produce it. It's a transition to something else and trying to find the path of least resistance.

A big part of it is building the infrastructure. If we peak within the next three years, we can't handle additional production, and that is a security issue.

From an economic standpoint, if OPEC reduces prices, investments go away. OPEC's position in the market makes investments in certain technologies risky. Will we see this investment coming? The analysis related to energy policy suggests that even if we make up the difference in what's lacking for world supply using other technologies, OPEC will still possess the market power they have today through 2050.

OPEC and non-OPEC production will be roughly about the same. Regarding risk – we have to keep doing what we're doing; but the risk is significant, and we will need to continue to protect our interests. The defense area concludes that the risk is significant. Regarding risk management, the risk is high enough that we need to make investments now.

Some other countries are much more restless than we are. They have insights to share on energy security impacts that they have worked on and experience to add to this discussion.